ELECTRICAL CODE AMENDMENTS

ORDINANCE NO. 3736
July 10, 2007

Effective September 1, 2007

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA, AMENDING CHAPTER 31, ARTICLE IV OF THE SCOTTSDALE REVISED CODE, RELATING TO THE ELECTRICAL CODE; ADOPTING THE 2005 EDITION OF THE NATIONAL ELECTRICAL CODE AND THE 2006 ICC ELECTRICAL CODE ADMINISTRATIVE PROVISIONS ADOPTING REVISIONS THERETO.

BE IT ORDAINED by the City Council of the City of Scottsdale, Arizona, as follows:

Section 1. ***Section 31-46 of the Scottsdale Revised Code is hereby repealed and replaced by a new Section 31-46, which shall read as follows:***

Sec. 31-46. Adoption.

The National Electrical Code, 2005 Edition, as published by the National Fire Protection Association and the 2006 ICC Electrical Code Administrative Provisions, as published by the International Conference of Building Officials, are adopted by reference and shall be the electrical code of the city. Three (3) copies of same shall at all times remain in the office of the city clerk and be open to inspection.

Section 2. ***Section 31-47 of the Scottsdale Revised Code is hereby repealed and replaced by a new Section 31-47, which shall read as follows:***

Sec. 31-47. Amendments.

(a) The ICC Electrical Code Administrative Provisions are amended in the following respects:

1) Where reference is made to the "International Building Code," substitute "Scottsdale Revised Code, Chapter 31, Article III".

2) Where reference is made to the "International Residential Code," substitute "Scottsdale Revised Code, Chapter 31, Article III".

3) Where reference is made to the "International Fire Code," substitute "Scottsdale Revised Code, Chapter 36, Article II".

4) Where reference is made to any section of the "International Mechanical Code," substitute "Scottsdale Revised Code, Chapter 31, Article VI".

5) *Section 101.1 is amended to read :*

Section 101.1 Title. These regulations shall be known as the Electrical Code of the City of Scottsdale and shall be cited as such and will be referred to herein as "this code".

6) *Section 102.6 is amended to read :*

Section 102.6 Referenced Codes and Standards. The codes and standards referenced in this code shall be those that are listed in Chapter 13, and in Scottsdale Revised Code Chapter 31, Article III, and such codes and standards shall be considered part of the requirements of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes or standards, the provisions of this code shall apply.

7) *Section 201.3 is amended to read :*

Section 201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in NFPA 70 or Scottsdale Revised Code Chapter 31, Article III, such terms shall have meanings ascribed to them as in those codes.

8) *Delete Section 301 and substitute the following :*

Section 301 Electrical inspections shall be performed as set forth in Scottsdale Revised Code Chapter 31, Article III.

9) *Delete Section 302 and substitute the following :*

Section 302 Duties and Powers of the Building Official shall be as set forth in Scottsdale Revised Code Chapter 31, Article III.

10) *Delete Section 303 and substitute the following :*

Section 303 Certificate of occupancy shall be as set forth in Scottsdale Revised Code Chapter 31, Article III.

11) *Section 402.5 is amended to read :*

Section 402.5 Time limitation of application. An application for a permit for any proposed work or operation shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the code official is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

12) *Section 403.3 is amended to read :*

Section 403.3 Extensions. The code official is authorized to grant, in writing, one or more extensions of the time period of a permit for periods of not more than 180 days each. Such extensions shall be requested by the permit holder in writing and justifiable cause demonstrated.

13) *Delete Section 404.2 and substitute the following :*

Section 404.2 Schedule of permit fees. Fees for each permit shall be paid as set forth in Scottsdale Revised Code Chapter 46, Article VII.

14) *Delete Section 504.3 and substitute the following :*

Section 504.3 Retention of construction documents shall be as set forth in Scottsdale Revised Code Chapter 31, Article III.

15) *Delete Chapter 11 and substitute the following :*

Chapter 11 Means of Appeal shall be as set forth in Scottsdale Revised Code Chapter 31, Article III.

16) *Section 1201.1.1 Adoption is amended to read:*

Electrical systems and equipment shall be designed and constructed in accordance with the International Residential Code as amended and adopted in Scottsdale Revised Code, Chapter 31, Article III or NFPA 70 as amended and adopted in Scottsdale Revised Code, Chapter 31, Article IV as applicable, except as otherwise provided in this code.

(b) The Code Provisions for the 2005 Edition of the National Electrical Code are amended in the following respects:

2) *ARTICLE 230, Section V Service Equipment - General is revised by adding 230-63 to read:*

230-63. Location. All service equipment rated 1000 amperes or more located inside a building shall be enclosed within a room or space separated from the rest of the building by not less than one-hour fire-resistive occupancy separation.

3) ***ARTICLE 240, Section VII Circuit Breakers is revised to read:***

240.86 Series Ratings.
Where a circuit breaker is used on a circuit having an available fault current higher than the marked interrupting rating by being connected on the load side of an acceptable overcurrent protective device having a higher rating, the circuit breaker shall meet the requirements specified in (A) or (B), (C) **and (D).**

(D) Existing Buildings. In existing buildings where the tested combinations in (b) above are not marked, one of the following conditions shall apply.

(1) The end-use equipment manufacturer shall investigate the equipment for conformance with the product test standard and, where applicable, field mark the equipment with the recognized combinations of series rated devices. Any field markings applied shall comply with the requirements of the end-use equipment manufacturer and shall bear the name and/or trademark of the manufacturer.
(2) Where the combination of series rated devices are marked, but not all combinations are shown, the end-use equipment manufacturer shall investigate the equipment and, where applicable, field mark the equipment with the additional recognized combinations of series rated devices. Any field markings applied shall comply with the requirements of the end-use equipment manufacturer and shall bear the name and/or trademark of the manufacturer.
(3) Under electrical supervision, the combinations of series rated devices in the end-use equipment shall be permitted to be field evaluated for conformance with the manufacturer's requirements. The end-use equipment shall be field marked with the additional recognized combinations of series rated devices. The field markings applied shall be permanent, legible and visible, and bear the name of the engineer evaluating the system. The marking shall state
"The combinations of series rated devices was field evaluated by (*name of Arizona registered electrical engineer*) and determined to be safe for use and in accordance with the manufacturer's requirements."

4) ***ARTICLE 250 Section VI Equipment Grounding and Equipment Grounding Conductors is revised to read:***

250-118. Types of Equipment Grounding Conductors

The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:

(1) A copper or other corrosion-resistant conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and in the form of a wire or a busbar of any shape.
(2) Rigid metal conduit.
(3) Intermediate metal conduit.
(4) Electrical metallic tubing with an individual equipment grounding conductor.
(5) Listed flexible metal conduit with an individual equipment grounding conductor meeting all the following conditions:
   a. The conduit is terminated in fittings listed for grounding.
   b. The circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.
   c. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground return path does not exceed 1.8 m (6 ft).
   d. Where used to connect equipment where flexibility is necessary after installation, an equipment grounding conductor shall be installed.
(6) Listed liquidtight flexible metal conduit with an individual equipment grounding conductor meeting all the following conditions:
   a. The conduit is terminated in fittings listed for grounding.

b. For metric designators 12 through 16 (trade sizes through ½), the circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.

c. For metric designators 21 through 35 (trade sizes ¾ through 1¼), the circuit conductors contained in the conduit are protected by overcurrent devices rated not more than 60 amperes and there is no flexible metal conduit, flexible metallic tubing, or liquidtight flexible metal conduit in trade sizes metric designators 12 through 16 (trade sizes through ½) in the grounding path.

d. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground return path does not exceed 1.8 m (6 ft).

e. Where used to connect equipment where flexibility is necessary after installation, an equipment grounding conductor shall be installed.

(7) Flexible metallic tubing with an individual equipment grounding conductor where the tubing is terminated in fittings listed for grounding and meeting the following conditions:

a. The circuit conductors contained in the tubing are protected by overcurrent devices rated at 20 amperes or less.

b. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground return path does not exceed 1.8 m (6 ft). Flexible metallic tubing with an individual equipment grounding conductor and where the tubing is terminated in fittings listed for grounding and meeting all the following conditions.

(8) Armor of Type AC cable as provided in 320.108.

(9) The copper sheath of mineral-insulated, metal-sheathed cable.

(10) Type MC cable where listed and identified for grounding in accordance with the following:

a. The combined metallic sheath and grounding conductor of interlocked metal tape–type MC cable

b. The metallic sheath or the combined metallic sheath and grounding conductors of the smooth or corrugated tube type MC cable

(11) Cable trays as permitted in 392.3(C) and 392.7.

(12) Cablebus framework as permitted in 370.3.

(13) Other listed electrically continuous metal raceways and listed auxiliary gutters.

(14) Surface metal raceways listed for grounding.

5) ***ARTICLE 310, Conductors for General Wiring is revised to read:***

310-15(B)(6) is revised to read:

(6) 120/240-Volt, 3-Wire, Single-Phase Dwelling Services and Feeders.
For individual dwelling units of one family, two-family, and multifamily dwellings, conductors, as listed in Table 310.15(B)(6), shall be permitted as 120/240-volt and 120/208 volt, 3-wire, single-phase service-entrance conductors, service lateral conductors, and feeder conductors that serve as the main power feeder to each dwelling unit and are installed in raceway or cable with or without an equipment grounding conductor. For application of this section, the main power feeder shall be the feeder(s) between the main disconnect and the lighting and appliance branch-circuit panelboards(s). The feeder conductors to a dwelling unit shall not be required to have an allowable ampacity rating greater than their service-entrance conductors. The grounded conductor shall be permitted to be smaller than the ungrounded conductors, provided the requirements of 215.2, 220.61, and 230.42 are met.

Table 310.15(B)(6) Conductor Types and Sizes for 120/240-Volt and 120/208-Volt, 3-Wire, Single-Phase Dwelling Services and Feeders. Conductor Types RHH, RHW, RHW-2, THHN, THHW, THW, THW-2, THWN, THWN-2, XHHW, XHHW-2, SE, USE, USE-2

Conductor (AWG or kcmil)			
Copper	Aluminum or Copper-Clad Aluminum	Service or Feeder Rating (Amperes)	
		≤ 30°C (86°F)	> 30°C (86°F)
4	2	100	----
3	1	110	----
2	1/0	125	100
1	2/0	150	125
1/0	3/0	175	150
2/0	4/0	200	175

3/0	250	225	200
4/0	300	250	225
250	350	300	250
350	500	350	300
400	600	400	350
500	750	----	400

CAUTION - UTILITY COMPANY CONDUCTOR SIZE REQUIREMENTS MAY VARY. CONSULT WITH SERVING UTILITY PRIOR TO INSTALLATION.

6) ***ARTICLE 334, Nonmetallic-Sheathed Cable: Types NM, NMC, and NMS is revised to read:***

334.10 Uses Permitted.
Type NM, Type NMC, and Type NMS cables shall be permitted to be used in the following:

(1) One- and two-family dwellings.
(2) Multifamily dwellings permitted to be of Types III, IV, and V construction except as prohibited in 334.12.
Delete (3) and (4)

334.12 Uses Not Permitted.
(A) Types NM, NMC, and NMS. Types NM, NMC, and NMS cables shall not be permitted as follows:

(1) In any dwelling or structure not specifically permitted in 334.10(1), (2), ~~and (3)~~ or in any multifamily dwelling or other structure exceeding three floors above grade.
For the purpose of this article, the first floor of a building shall be that floor that has 50 percent or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage, or similar use shall be permitted.

(2) Exposed in dropped or suspended ceilings in other than one- and two-family and multifamily dwellings
(3) As service-entrance cable
(4) In commercial garages having hazardous (classified) locations as defined in 511.3
(5) In theaters and similar locations, except where permitted in 518.4(B)
(6) In motion picture studios
(7) In storage battery rooms
(8) In hoistways or on elevators or escalators
(9) Embedded in poured cement, concrete, or aggregate
(10) In hazardous (classified) locations, ~~except where permitted by the following:~~
~~a. 501.10(B)(3)~~
~~b. 502.10(B)(3)~~
~~c. 504.20~~

(B) Types NM and NMS. Types NM and NMS cables shall not be used under the following conditions or in the following locations:
(1) Where exposed to corrosive fumes or vapors
(2) Where embedded in masonry, concrete, adobe, fill, or plaster
(3) In a shallow chase in masonry, concrete, or adobe and covered with plaster, adobe, or similar finish
(4) Where exposed or subject to excessive moisture or dampness

7) ***ARTICLE 358, Electrical Metallic Tubing: Type EMT is amended to read:***

358.10 Uses Permitted.
(A) Exposed and Concealed. The use of EMT shall be permitted for both exposed and concealed work.

Delete (B)

(C) Wet Locations. All supports, bolts, straps, screws, and so forth shall be of corrosion-resistant materials or protected against corrosion by corrosion-resistant materials. Hot dipped galvanized is not considered an acceptable corrosion-resistant material by itself.

358.12 Uses Not Permitted.
EMT shall not be used under the following conditions:
(1) Where, during installation or afterward, it will be subject to severe physical damage
(2) Where protected from corrosion solely by enamel
(3) In cinder concrete or cinder fill where subject to permanent moisture unless protected on all sides by a layer of noncinder concrete at least 50 mm (2 in.) thick or unless the tubing is at least 450 mm (18 in.) under the fill
(4) In any hazardous (classified) location except as permitted by 502.10, 503.10, and 504.20
(5) For the support of luminaires (fixtures) or other equipment except conduit bodies no larger than the largest trade size of the tubing
(6) Where practicable, dissimilar metals in contact anywhere in the system shall be avoided to eliminate the possibility of galvanic action.

Exception: *Aluminum fittings and enclosures shall be permitted to be used with steel EMT where not subject to severe corrosive influences.*

(7) Installed in concrete, in direct contact with the earth, or in areas subject to severe corrosive influences.

PASSED AND ADOPTED BY THE Council of the City of Scottsdale, Maricopa County, Arizona this 10th day of July, 2007.

ATTEST:

CITY OF SCOTTSDALE
A municipal corporation

_____
Carolyn Jagger
City Clerk

_____
Mary Manross
Mayor

APPROVED AS TO FORM:

_____
Deborah Robberson
City Attorney